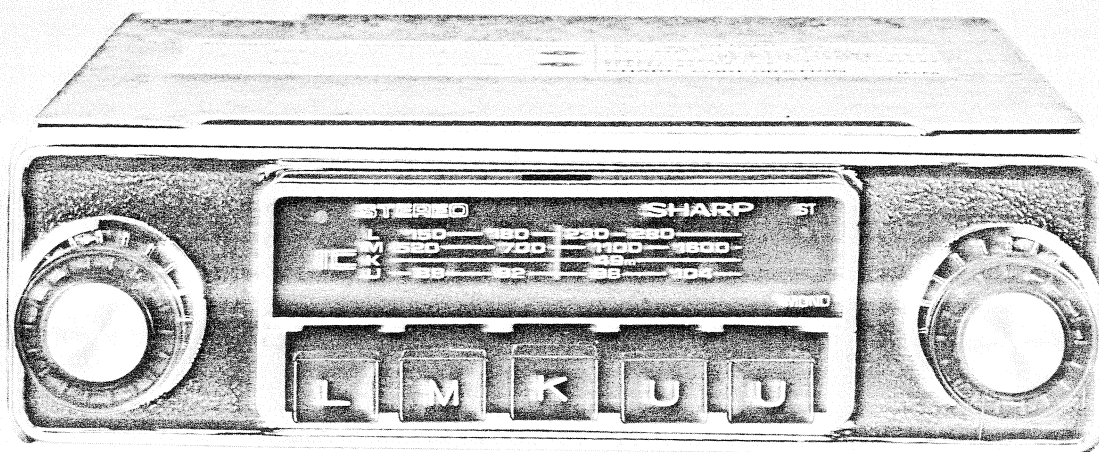




# Service Manual



## MODEL AR-957

### SPECIFICATIONS

Frequency Range	
LW .....	150 ~ 285 kHz
MW .....	520 ~ 1620 kHz
SW .....	5.95 ~ 6.2 MHz (49m)
FM .....	88 ~ 104 MHz
Intermediate Frequency	
AM (LW/MW/SW) .....	452 kHz
FM .....	10.7 MHz
Power Output	
Undistorted .....	3.5W + 3.5W
Maximum .....	5W + 5W
Speaker .....	12cm full range with speaker box (CP-27), V.C. Impedance 4-ohm
Power Supply	
Car battery 12V, (+) or (-)	
Earthing polarity	
Controls	
Off-On/Volume control (Left),	
Tone control (Left),	
Manual tuning (Right),	
Balance control (Right),	
Function push button (pre setting)	
and FM STEREO-MONO selector switch	
Dimensions	
160 mm (W) × 50 mm (H) ×	
160 mm (D)	
Weight .....	1.5 Kg

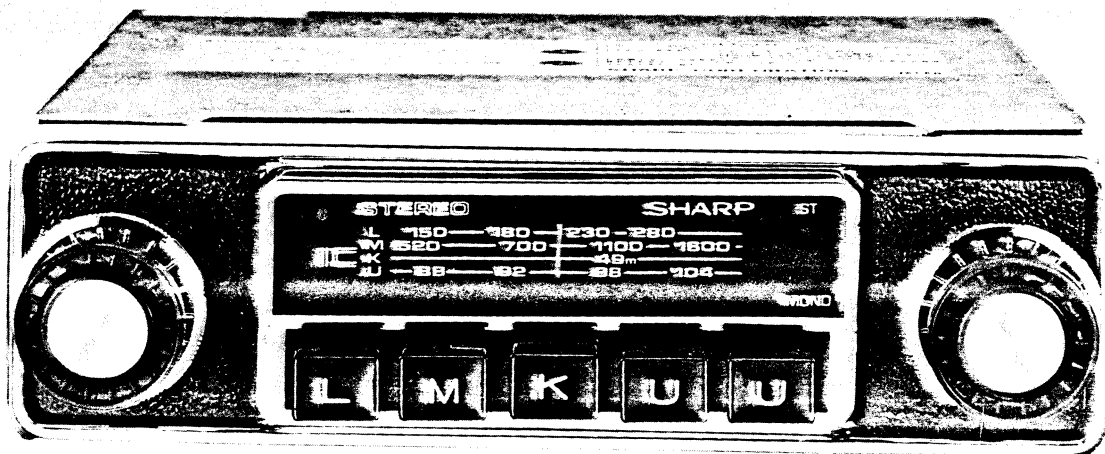
### CHASSIS REMOVAL

1. Unscrew nine setscrews fixing the upper lid and bottom lid and remove them from the cabinet.
2. After that, repairing the set is possible. But when it is further necessary to remove the main printed wiring board, take the procedures as shown below.
  - (1) Disconnect the lead of the stereo indicator lamp.
  - (2) Disconnect 15 leads from the tuner.
  - (3) Remove the terminals of IC201 and IC202.
  - (4) Disconnect four leads from the feed through capacitors.
  - (5) Disconnect four leads from the polarity selector socket.
  - (6) Disconnect two leads (white, brown) from DIN socket.
  - (7) Disconnect eight leads from the band indicator printed wiring board.
  - (8) Disconnect the leads from the antenna socket.
  - (9) Remove all the soldered joints and the leads between the main printed wiring board and switch printed wiring board.
  - (10) Disconnect the lead from the balance control
  - (11) Remove the capacitors between the cabinet and main printed wiring board.
  - (12) Remove the capacitors between the tuner and the main printed wiring board.
  - (13) Remove the soldered joint at the leg of capacitor (16V-1000MFD).

**SHARP CORPORATION OSAKA, JAPAN**



# Service Manual



## MODEL AR-957

### SPECIFICATIONS

Frequency Range	
LW .....	150 ~ 285 kHz
MW .....	520 ~ 1620 kHz
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Maximum .....	5W + 5W
Speaker .....	12cm full range with speaker box (CP-27), V.C. Impedance 4-ohm
Power Supply .....	
Car battery 12V, (+) or (-)	
Earthing polarity	
Controls .....	
Off-On/Volume control (Left),	
Tone control (Left),	
Manual tuning (Right),	
Balance control (Right),	
Function push button (pre setting)	
and FM STEREO-MONO selector	
switch	
Dimensions .....	
160 mm (W) x 50 mm (H) x	
160 mm (D)	
Weight .....	1.5 Kg

### CHASSIS REMOVAL

1. Unscrew nine setscrews fixing the upper lid and bottom lid and remove them from the cabinet.
2. After that, repairing the set is possible. But when it is further necessary to remove the main printed wiring board, take the procedures as shown below.
  - (1) Disconnect the lead of the stereo indicator lamp.
  - (2) Disconnect 15 leads from the tuner.
  - (3) Remove the terminals of IC201 and IC202.
  - (4) Disconnect four leads from the feed through capacitors.
  - (5) Disconnect four leads from the polarity selector socket.
  - (6) Disconnect two leads (white, brown) from DIN socket.
  - (7) Disconnect eight leads from the band indicator printed wiring board.
  - (8) Disconnect the leads from the antenna socket.
  - (9) Remove all the soldered joints and the leads between the main printed wiring board and switch printed wiring board.
  - (10) Disconnect the lead from the balance control
  - (11) Remove the capacitors between the cabinet and main printed wiring board.
  - (12) Remove the capacitors between the tuner and the main printed wiring board.
  - (13) Remove the soldered joint at the leg of capacitor (16V-1000MFD).

**SHARP CORPORATION OSAKA, JAPAN**

## GENERAL DESCRIPTION

The circuit used in this 4-band (LW/MW/SW/FM FM STEREO) car radio incorporates 4-IC (Integrated circuit), 9-transistor and 17-diode.

An external antenna feeds the AM (LW/MW/SW) broadcasting signal to the AM RF amplifier (Q4), AM converter (Q5). The AM signal then goes through 2 IF amplifiers (Q101, Q102) to the diode detector (D103) and then to the audio amplifier stages.

An external antenna feeds the FM or FM Stereo broadcasting signal to the FM RF amplifier (Q1). The FM mixer (Q2), 3 IF amplifiers (Q101, Q102 and IC101), 2 diodes (D106, D107) detector and MPX (multiplex) circuit (IC102) and then to the audio amplifier stages.

The audio signal transmitted to right (or left) speaker through IC201 (or IC202).

An AM AGC voltage is fed back to the RF amplifier circuit and 1st IF amplifier circuit.

A FM AGC voltage is fed back to the FM RF Amplifier circuit.

An AFC voltage is fed back to the FM oscillator circuit.

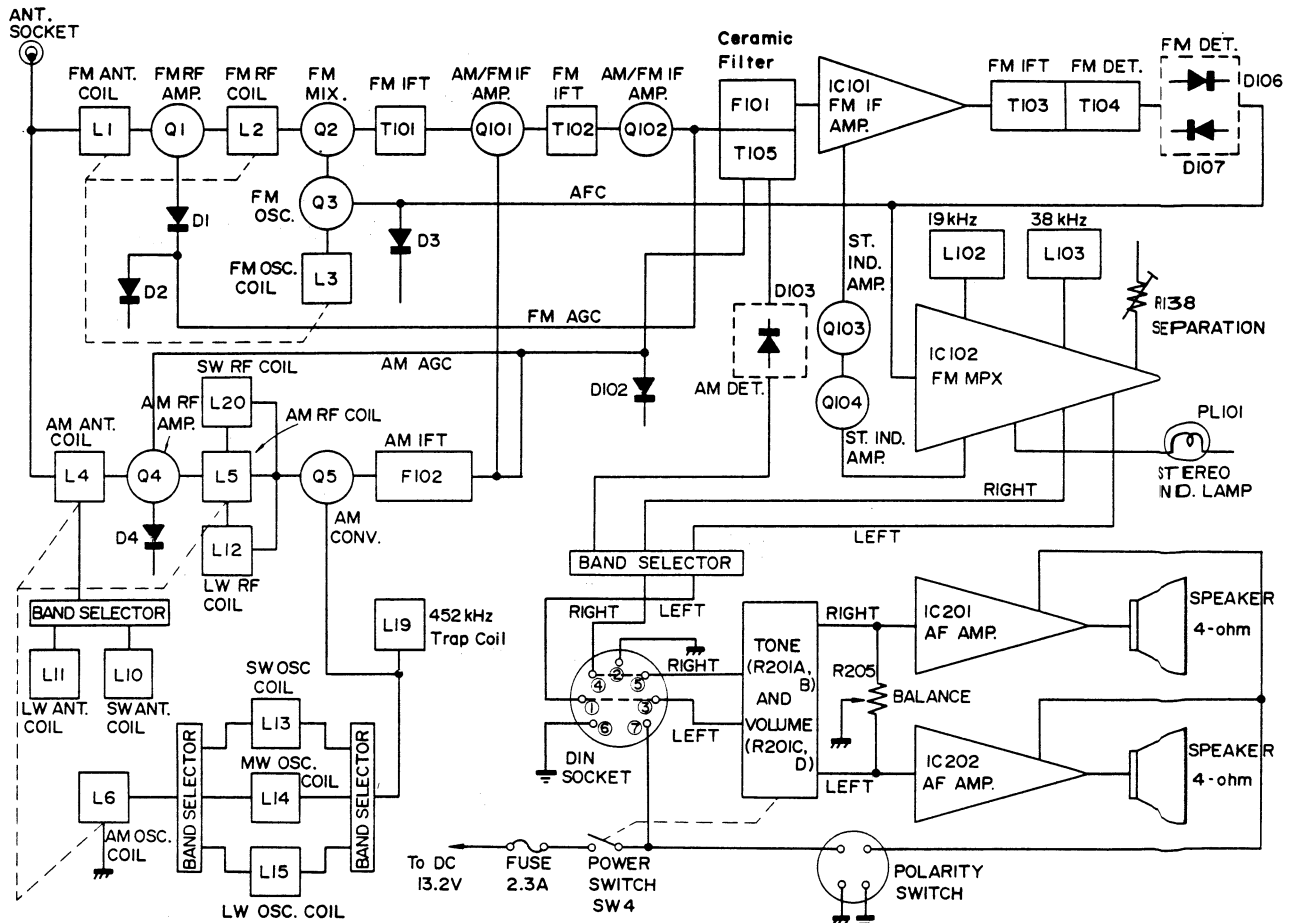


Figure 1 BLOCK DIAGRAM

## GENERAL ALIGNMENT INSTRUCTIONS

Should it become necessary at any time to check the alignment of this receiver, proceed as follows;

- 1) Connect an output meter across the speaker voice coil lugs.
- 2) Set the volume control at maximum.
- 3) Attenuate the signals from the generator enough to swing the most sensitive range of the output meter.
- 4) Use a non-metallic alignment tool.
- 5) Repeat adjustments to insure good results.

### AM IF ALIGNMENT CHART

STEP	BAND	SIGNAL GENERATOR		RECEIVER		ADJUSTMENT
		CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY	DIAL SETTING	REMARKS	
1	MW	Connect signal generator through a dummy to the car antenna socket. Ground lead to the receiver chassis. (Refer to figure 2)	Exactly 452 kHz (400Hz, 30%, AM modulated)	High end of dial. (minimum inductance)	Adjust for maximum output at speaker voice coil lugs.	F102 (Yellow) T105 (Black)
		Repeat until no further improvement can be made.				

#### Adjustment of 452kHz Trap Coil

After IF adjustment, turn the trap coil (L19) to adjust so that IF waveform becomes smallest.

### AM RF ALIGNMENT CHART

STEP	BAND	TEST STAGE	SIGNAL GENERATOR		RECEIVER		ADJUSTMENT
			CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY	DIAL SETTING	REMARKS	
1	SW	Band Coverage and Tracking	Connect signal generator through a dummy to the car antenna socket. Ground lead to the receiver chassis. (Refer to figure 2)	Exactly 5.9 MHz (400 Hz, 30%, AM modulated)	Low end of dial. (maximum inductance)	Adjust for maximum output on speaker voice coil lugs.	Oscillator coil L13 (Black)
2	SW		Same as step 1.	Exactly 6.1 MHz (400 Hz, 30%, AM modulated)	6.1 MHz	Same as step 1.	Antenna coil L10 (Black) and RF trimmer C6.
3	SW		Repeat steps 1 and 2 until no further improvement can be made.				
4	MW	Band Coverage	Same as step 1.	Exactly 510 kHz (400 Hz, 30%, AM modulated)	Low end of dial. (maximum inductance)	Same as step 1.	Oscillator coil L14 (Red)
5	MW		Same as step 1.	Exactly 1650 kHz (400 Hz, 30%, AM modulated)	High end of dial. (minimum inductance)	Same as step 1.	Oscillator trimmer C1.
6	MW		Repeat steps 4 and 5 until no further improvement can be made.				
7	MW	Tracking	Same as step 1.	Exactly 1400 kHz (400 Hz, 30%, AM modulated)	1400 kHz	Same as step 1.	RF trimmer C7 and Antenna trimmer C1.
8	MW		Repeat until no further improvement can be made.				

STEP	BAND	TEST STAGE	SIGNAL GENERATOR		RECEIVER		ADJUSTMENT
			CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY	DIAL SETTING	REMARKS	
9	LW	Band Coverage	Same as step 1.	Exactly 145 kHz (400 Hz, 30%, AM modulated)	Low end of dial. (maximum inductance)	Same as step 1.	Oscillator coil L15 (Green)
10	LW		Same as step 1.	Exactly 310kHz (400 Hz, 30%, AM modulated)	High end of dial. (minimum inductance)	Same as step 1.	Oscillator trimmer C9.
11	LW		Repeat steps 9 and 10 until no further improvement can be made.				
12	LW	Tracking	Same as step 1.	Exactly 160 kHz (400 Hz, 30%, AM modulated)	160 kHz	Same as step 1.	Antenna trimmer C4.
13	LW		Same as step 1.	Exactly 260 kHz (400 Hz, 30%, AM modulated)	260 kHz	Same as step 1.	Antenna coil L11 (Black) and RF coil L12 (Black)
14	LW		Repeat steps 12 and 13 until no further improvement can be made.				

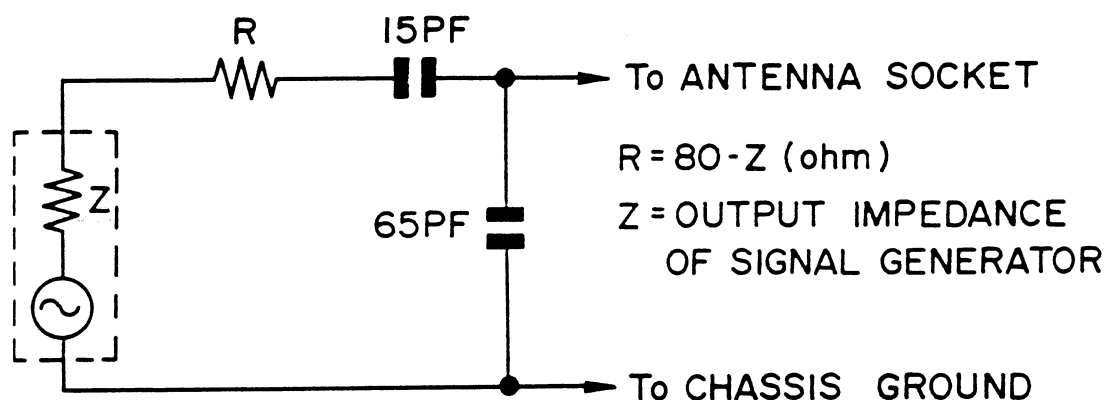


Figure 2 AM DUMMY

### FUSE REPLACEMENT

If the set does not operate and the dial lamp does not light up, check the fuse and change, if broken.

- 1) Turn the unit off.
- 2) Remove the broken fuse from the fuse holder.
- 3) Insert the new fuse in fuse holder.

Do not replace with fuses in excess of 2.3A rating or damage to the set may result.

## FM ALIGNMENT CHART

STEP	TEST STAGE	SIGNAL GENERATOR		RECEIVER		ADJUSTMENT
		CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY	DIAL SETTING	REMARKS	
1	IF	Connect signal generator through a 5PF capacitor to mixer emitter, test point <b>TP1</b> of Q2. Connect generator ground lead to the receiver chassis.	Exactly 10.7MHz (400Hz, 30%, AM modulated)	Low end of dial. (maximum inductance)	Connect VTVM between test point <b>TP102</b> and chassis ground.	Detune T104. Tune T101 (Violet), T102 (Violet) and T103 (Green) maximum inductance.
2	Ratio Detector	Same as step 1.	Exactly 10.7MHz (unmodulated)	Same as step 1.	See NOTE A.	See NOTE A.
3	Repeat steps 1 and 2 until no further improvement can be made.					
4	Band Coverage	Connect signal generator through a dummy including output impedance of signal generator to the car antenna socket. Ground lead of generator connected to the receiver chassis. (Refer to figure 3)	Exactly 88MHz (400Hz, 30%, FM modulated)	Same as step 1.	Adjust for maximum output at speaker voice coil.	Oscillator trimmer C3.
		Same as above.	Exactly 105.5MHz (400Hz, 30%, FM modulated)	High end of dial. (minimum inductance)	Same as above.	Oscillator coil L9.
5	Tracking	Same as step 4.	Exactly 104MHz (400Hz, 30%, FM modulated)	104MHz	Same as step 4.	RF coil L8 and antenna coil L7.
		Same as above.	Exactly 90MHz (400Hz, 30%, FM modulated)	90MHz	Same as above.	RF trimmer C2 and antenna trimmer C1.
6	Repeat steps 4 and 5 until no further improvement can be made.					

### NOTE A

- 1) Connect VTVM (0.1 volts range D.C. Scale) between test point **TP103** and chassis ground.
- 2) Adjust T104 (Orange) for 0 volts on VTVM.
- 3) Change signal generator frequency 10.7MHz + 100kHz and -100kHz approximately.
- 4) Adjust T103 (Green) for balanced peaks. Peak separation should be approximately 200kHz.

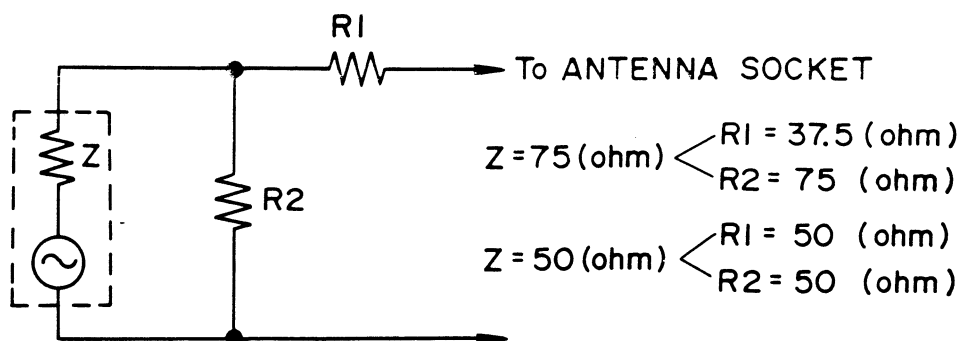


Figure 3 FM DUMMY

## FM STEREO ALIGNMENT

Set the FM STEREO-MONO switch (SW3) to STEREO position.

### (A) 19kHz Alignment

- 1) Connect the signal generator to **TP103** through a 10MFD capacitor.
- 2) Set the frequency of the signal generator to 19kHz.
- 3) Connect the VTVM to **TP104**. Set the VTVM swing to maximum by adjusting L102.
- 4) Connect the VTVM to **TP105**. Set the VTVM swing to maximum by adjusting L103.

### (B) Separation Ratio

- 1) Connect an FM STEREO simulator to the antenna socket through the FM dummy.
- 2) Connect a VTVM across left speaker.
- 3) Feed in right channel signal only.
- 4) Adjust L102 and L103 for minimum reading.
- 5) Set stereo simulator to left channel signal only.
- 6) Connect a VTVM across right speaker.
- 7) Adjust R138 for balance between the two readings.
- 8) Repeat steps 2), 3), 5), 6) and 7) obtain equal readings and more than 30dB difference between channels.

## THE INSTRUCTION OF FREQUENCY ADJUSTMENT

In order to comply with FTZ rule: Nr. 358 S757, please fix the low end of dial frequency (87.5 MHz) and the high end of dial frequency (107.9 MHz) on FM band, by adjusting oscillation trimmer (C3) and oscillation coil (L9), respectively, as illustrated in figure 4.

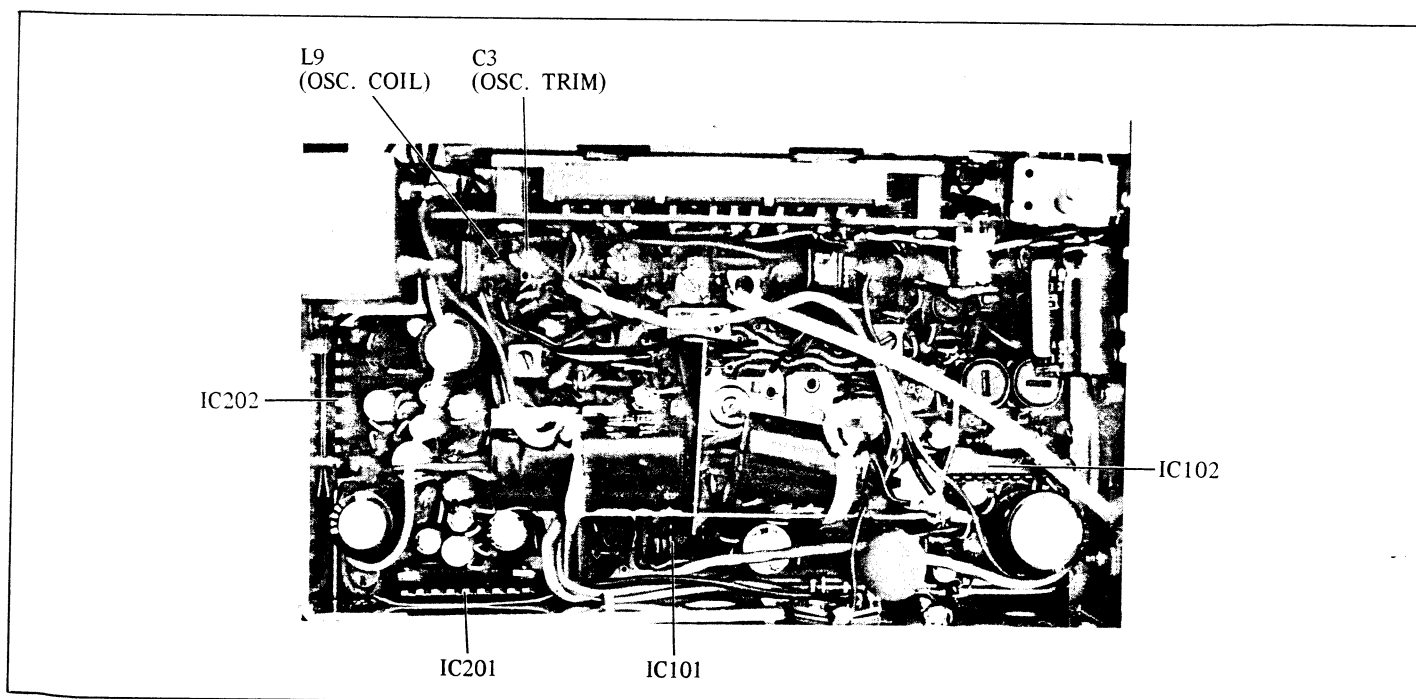


Figure 4 INSTRUCTION OF FREQUENCY ADJUSTMENT

NOISE SUPPRESSION ELEMENT INSTALLATION

- 1) Noise suppression resistor for Distributor  
As shown in the figure 5, cut off the wire between the ignition coil and distributor as close to distributor as possible, and screw the noise suppression resistor ("S" type) in the wire cut off.
- 2) Noise suppression resistor for Spark plug  
As shown in the figure 5, fit one noise suppression resistor ("L" type) to each spark plugs.
- 3) In case noise from the generator affects the radio, connect the noise suppression capacitor (0.5 MFD) to the armature terminal as shown in the figure 6.
- 4) If noise occurs due to a defect in the regulator, wiper, oil gauge, petrol gauge, etc., insert a capacitor (3 MFD) as near the source of the disturbance as possible.

NOTE:

- \* This radio is not furnished with noise suppression resistors and 3 MFD noise-suppression capacitor.
- \* If you take the above measures, external noise will be prevented.
- However, if the bonnet cover or the body earth at the aerial foot is imperfect, reception may still be hampered by noises. Fix each par and body earth firmly.

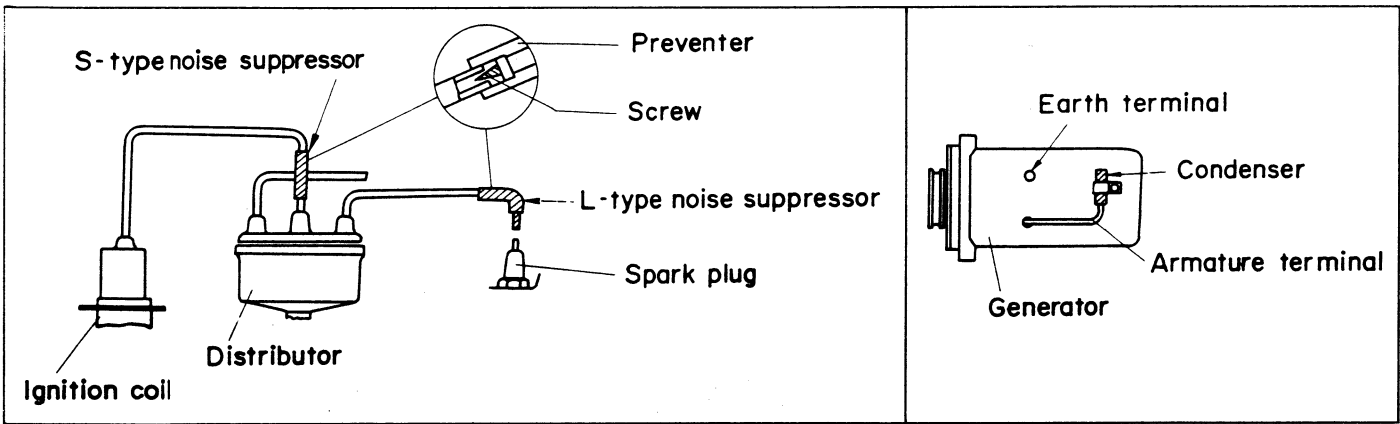


Figure 5

Figure 6

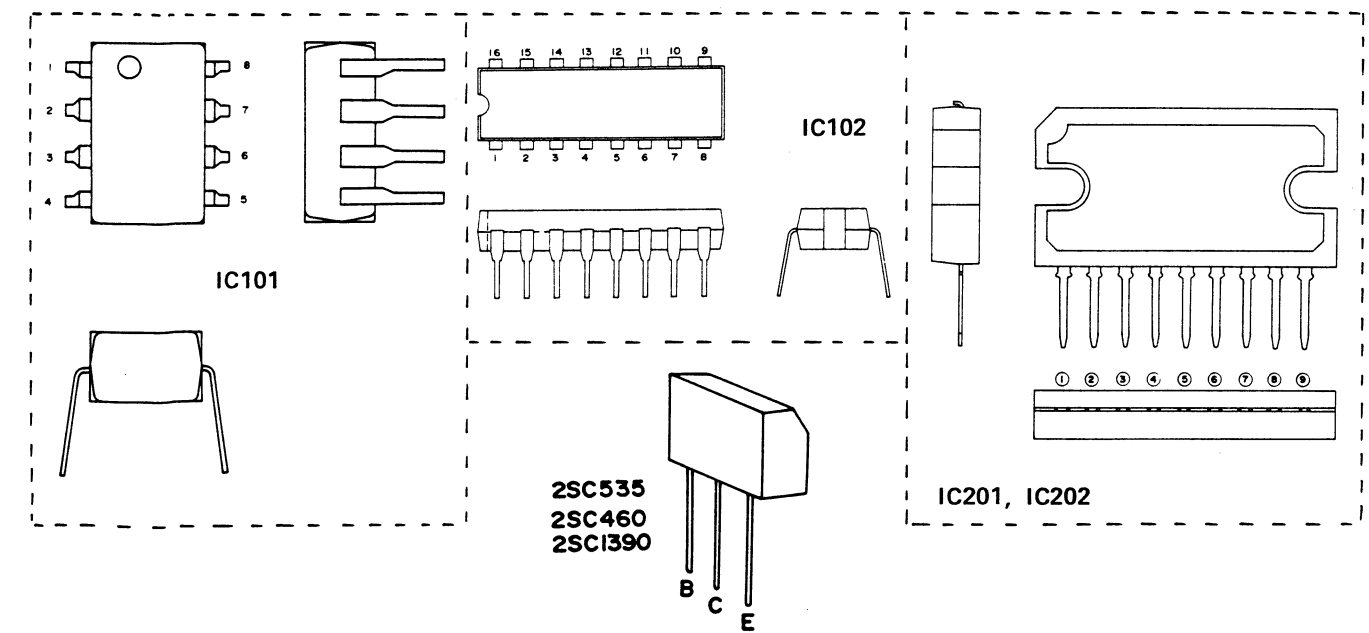


Figure 7 IC BASING

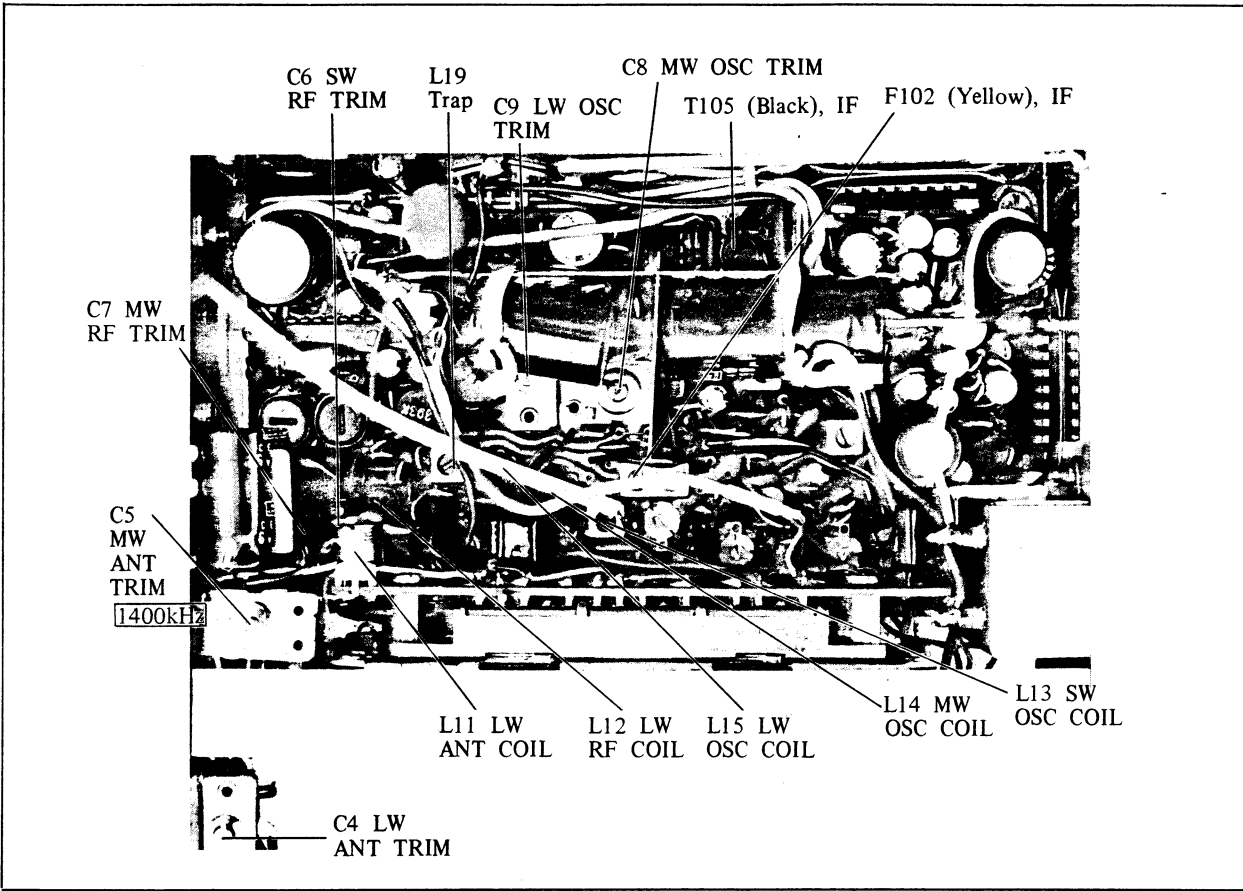


Figure 8 AM ALIGNMENT POINTS

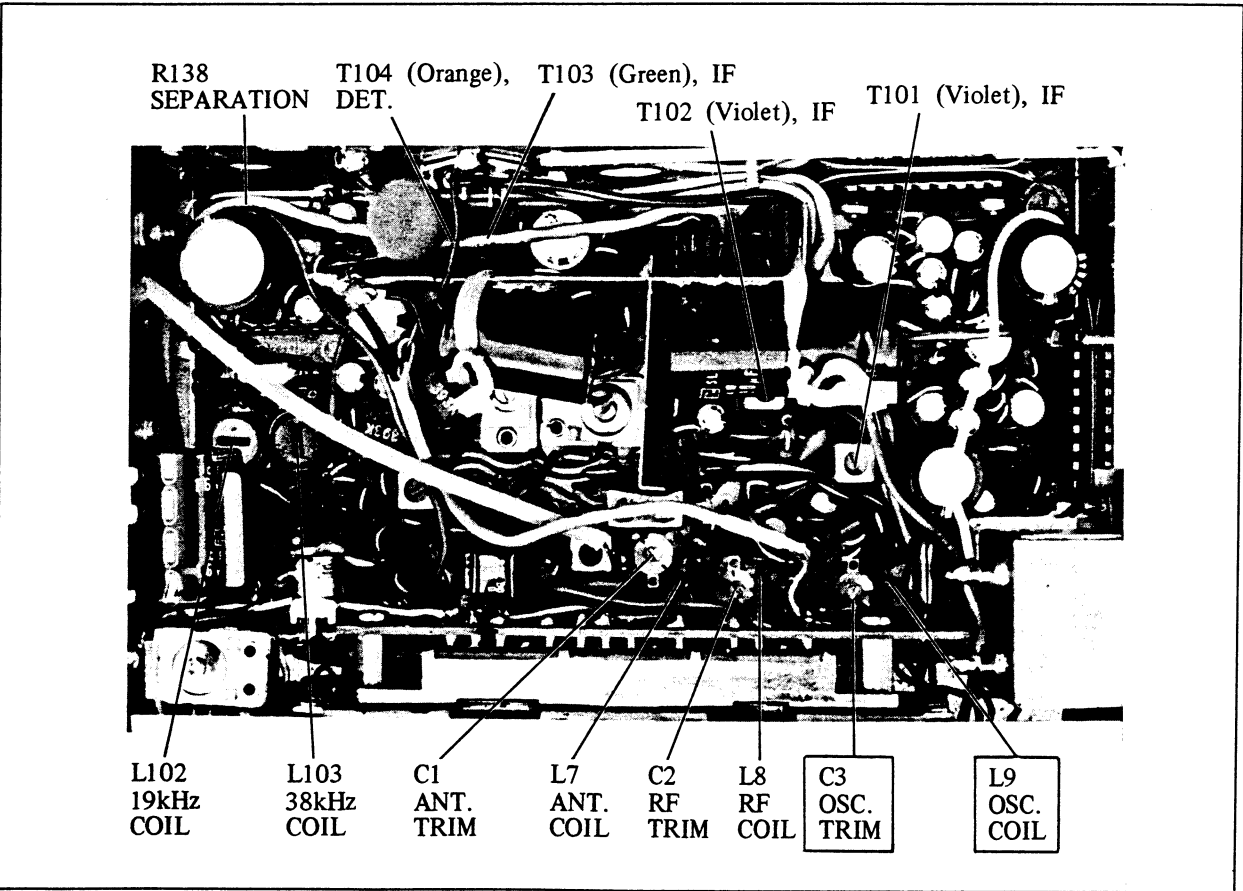


Figure 9 FM and MPX ALIGNMENT POINTS





9



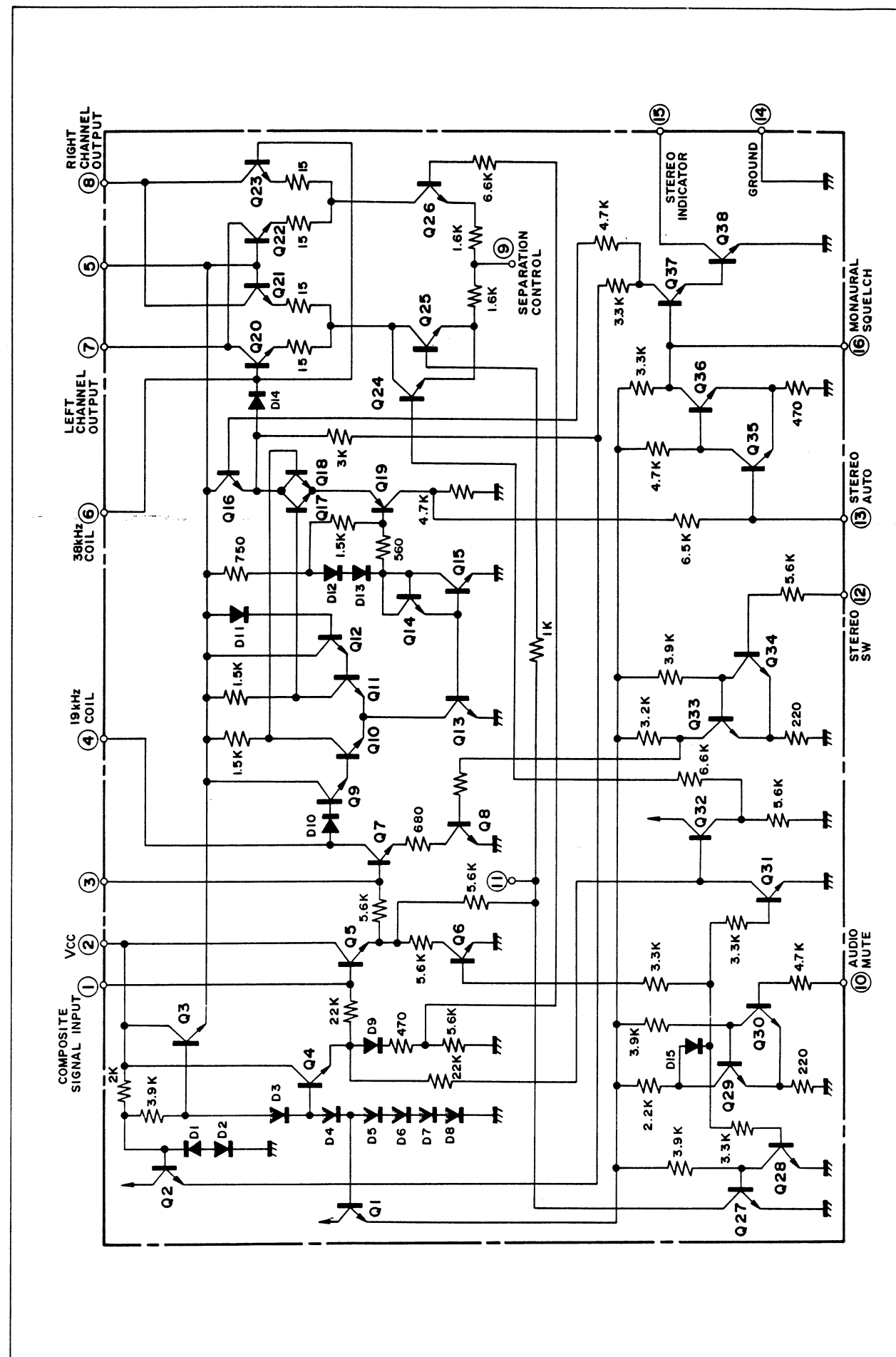


Figure 12 EQUIVALENT CIRCUIT OF INTEGRATED CIRCUIT (IC102)

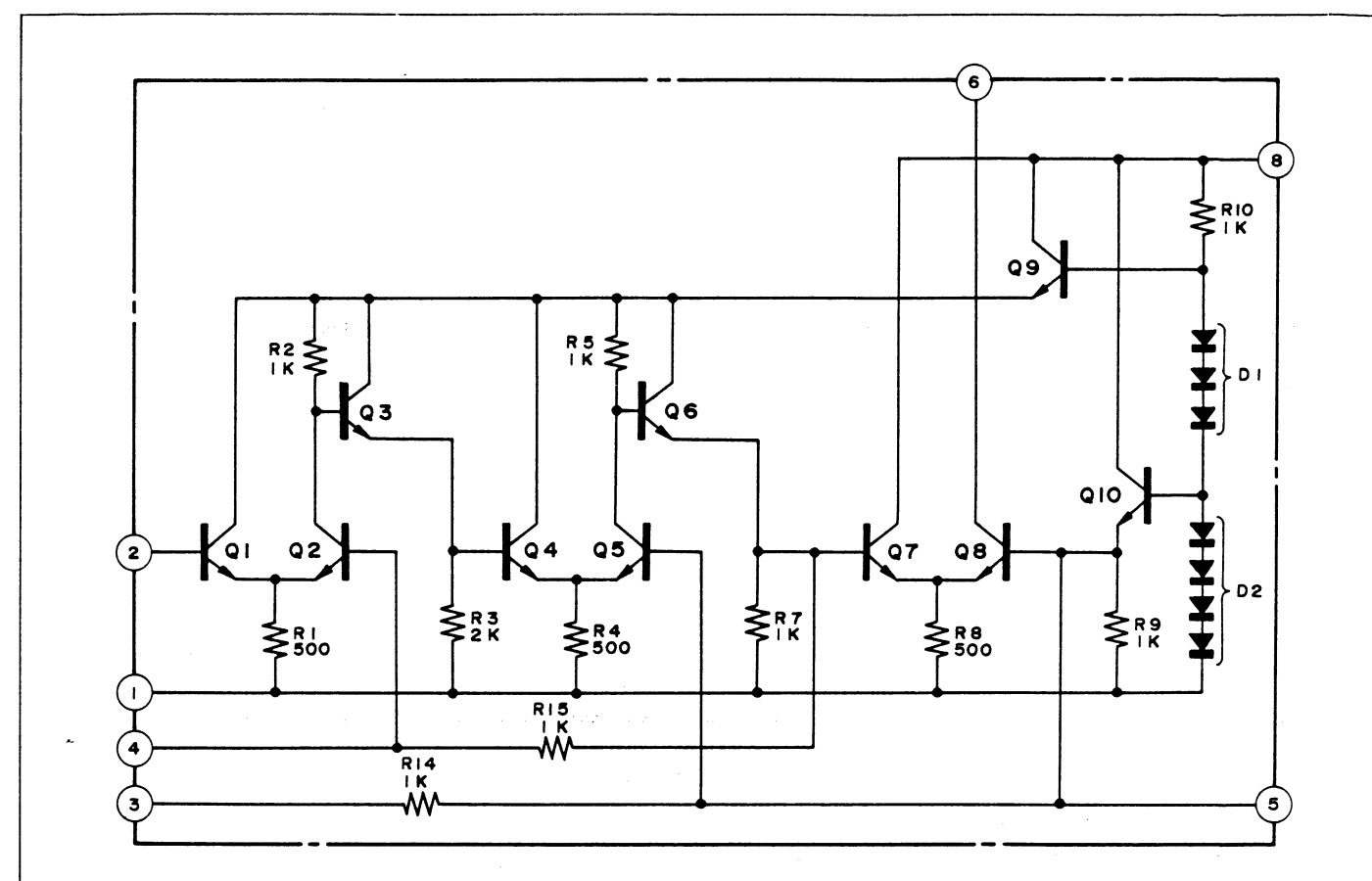


Figure 13 EQUIVALENT CIRCUIT OF INTEGRATED CIRCUIT (IC101)

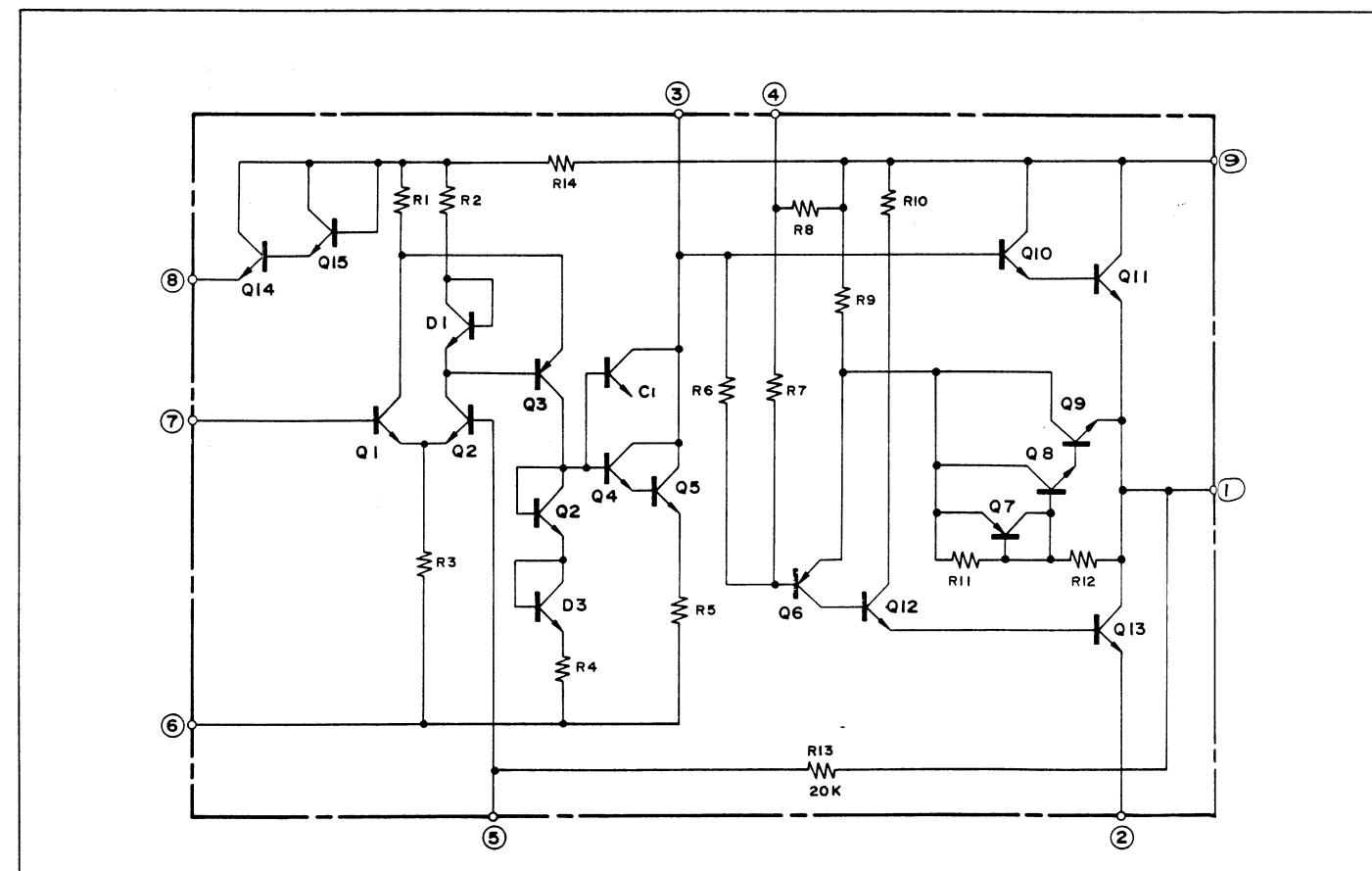


Figure 14 EQUIVALENT CIRCUIT OF INTEGRATED CIRCUIT (IC201 and IC202)



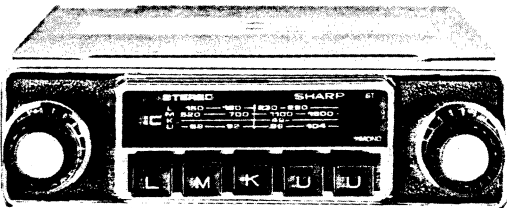
PARTS LIST

MODEL  
AR-957

“HOW TO ORDER REPLACEMENT PARTS”

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION



MODEL  
AR-957

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
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SEMICONDUCTORS

Q1	VS2SC535-B/-1	Transistor, FM RF Amplifier
Q2	VS2SC535-B/-1	Transistor, FM Mixer
Q3	VS2SC461-B/-1	Transistor, FM Oscillator
Q4	VS2SC460-B/-1	Transistor, AM RF Amplifier
Q5	VS2SC460-C/-1	Transistor, AM Converter
Q101	VS2SC1390-W-1	Transistor, 1st AM/FM IF Amplifier
Q102	VS2SC1390-X-1	Transistor, 2nd AM/FM IF Amplifier
Q103	VS2SC460-C/-1	Transistor, Stereo Indication Amplifier
Q104	VS2SC460-C/-1	Transistor, Stereo Indication Amplifier
IC101	RH-IX0926AFZZ	Integrated Circuit, FM IF Amplifier
IC102	RH-IX0930AFZZ	Integrated Circuit, FM MPX
IC201, IC202	RH-IX0929AFZZ	Integrated Circuit, Audio Amplifier
D1	VHD1N34A///-1	Diode, FM AGC
D2	VHD1N34A///-1	Diode, FM AGC
D3	VHC1S85-Y///-1	Diode, FM AFC
D4	VHD1N34A///-1	Diode, AM Overload
D5	VHPREDLIT503F	Light Emission Diode, FM
D6	VHPREDLIT503F	Light Emission Diode, SW
D7	VHPREDLIT503F	Light Emission Diode, MW
D8	VHPREDLIT503F	Light Emission Diode, LW
D9, D10	VHDI2076// -1	Diode, Protection Against Static Destruction
D101	VHEXZ-072// -1	Zener Diode, Voltage Regulator (6.95 ~ 7.45V)
D102	VHD1N34A///-1	Diode, AM AGC
D103	VHD1N34A///-1	Diode, AM Detector
D104	VHD1N34A///-1	Diode, Stereo Indication
D105	VHD1N34A///-1	Diode, Stereo Indication
D106, D107	VHDI600///-3	Diode, FM Discriminator (Matched Pair)

COILS AND TRANSFORMERS

L1, L2, L3, L4, L5, L6, SW1-A ~ D, SW2-A ~ H	RTUNC0050AFZZ	Tuner Assembly with Band Selector Switch L1 : Coil, FM Antenna L2 : Coil, FM RF L3 : Coil, FM Oscillator L4 : Coil, AM Antenna L5 : Coil, AM RF L6 : Coil, AM Oscillator SW1-A ~ D : AM/FM SW2-A ~ H : LW/SW/MW Selector Swtich
L7	RCILR0191AFZZ	Coil, FM Antenna
L8	RCILR0191AFZZ	Coil, FM RF
L9	RCILR0191AFZZ	Coil, FM Oscillator
L10	RCILA0171AFZZ	Coil, SW Antenna
L11	RCILA0301AFZZ	Coil, LW Antenna
L12	RCILR0181AFZZ	Coil, LW RF
L13	RCILB0247AFZZ	Coil, SW Oscillator
L14	RCILB0294AFZZ	Coil, MW Oscillator
L15	RCILB0307AFZZ	Coil, LW Oscillator
L16	RCILZ0005AFZZ	Coil, FM Choke
L17	RCILC0008AFZZ	Coil, FM Emitter Choke
L18	RCILC0019AFZZ	Coil, AM Noise
L19	RCILR0143AFZZ	Coil, 452kHz Trap
L20	RCILC0017AFZZ	Coil, SW RF
L21	RCILZ0004AFZZ	Coil, SW Oscillator
L22	RCILR0203AFZZ	Coil, MW Oscillator
L23	RCILR0228AFZZ	Coil, LW Oscillator
L24	RCILR0095AFZZ	Coil, FM Antenna Loading
L101	RCILC0017AFZZ	Coil, 10.7MHz Collector Load
L102	RCILM0006AFZZ	Coil, FM MPX, 19kHz Signal
L103	RCILM0007AFZZ	Coil, FM MPX, 38kHz Signal
L104	RCILF0017AGZZ	Coil, 38kHz Filter
L105	RCILF0017AGZZ	Coil, 38kHz Filter
L201	RCILC0037AFZZ	Coil, Audio Choke
L202	RCILC0037AFZZ	Coil, Audio Choke



PARTS LIST

MODEL  
AR-957

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
T101	RCIL10157AFZZ	Transformer, 1st FM IF	C30	VCKYPU1SD103Z	.01MFD, 30V, +80 -20%, Discap
T102	RCIL10157AFZZ	Transformer, 2nd FM IF	C31	VCKYPU1SD103Z	.01MFD, 30V, +80 -20%, Discap
T103	RCIL10183AFZZ	Transformer, 4th FM IF	C32	VCCSPU1HL7R0D	7PF, 50V, ±0.5PF, Discap
T104	RCIL10182AFZZ	Transformer, FM Discriminator	C33	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar
T105	RCIL10169AFZZ	Transformer, 2nd AM IF	C34	VCKYPU1SD103Z	.01MFD, 30V, +80 -20%, Discap
T201	RTRNC0007AFZZ	Transformer, Power Choke	C35	VCKYPU1SD103Z	.01MFD, 30V, +80 -20%, Discap
F101	RFILF0009AFZZ	Ceramic Filter, 10.7MHz (3rd FM IF)	C36	VCCSBU1HL101J	100PF, 50V, ±5%, Discap
F102	RFILA0010AFZZ	Transformer, 1st AM IF with Filter	C37	VCQSMT1HS182J	1800PF, 50V, ±5%, Styrol
			C38	VCEAAU1CW108Q	1000MFD, 16V, +100 -10%, Electrolytic

PACKAGED CIRCUITS

M101	RMPTA0036AFZZ	Capristor, 500 ohm + .02MFD
M102	RMPTA0037AFZZ	Capristor, 1K ohm + .02MFD
M103	RMPTA0011AFZZ	Capristor, 470 ohm + .02MFD x 2
M104	RMPTA0084AFZZ	Capristor, 4.7K ohm x 2 + 330PF x 3

CAPACITORS

C1	RTO-H1004AFZZ	Trimmer Capacitor, FM Antenna
C2	RTO-H1004AFZZ	Trimmer Capacitor, FM RF
C3	RTO-H1004AFZZ	Trimmer Capacitor, FM Oscillator
C4	RTO-A1003AFZZ	Trimmer Capacitor, LW Antenna
C5	RTO-A1002AFZZ	Trimmer Capacitor, MW Antenna
C6	RTO-H1009AFZZ	Trimmer Capacitor, SW RF
C7	RTO-H1019AGZZ	Trimmer Capacitor, MW RF
C8	RTO-H1019AGZZ	Trimmer Capacitor, MW Oscillator
C9	RTO-A1004AFZZ	Trimmer Capacitor, LW Oscillator
C10	VCCSPU1HL150J	15PF, 50V, ±5%, Discap
C11	VCCSPU1HL220J	22PF, 50V, ±5%, Discap
C12	VCCSPU1HL100D	10PF, 50V, ±0.5PF, Discap
C13	VCCSPU1HL6R0C	6PF, 50V, ±0.25PF, Discap
C14	VCKYPU1HB223M	.022MFD, 50V, ±20%, Discap
C15	VCCSPU1HL5R0C	5PF, 50V, ±0.25PF, Discap
C16	VCCSPU1HL270J	27PF, 50V, ±5%, Discap
C17	VCKYPU1HB102M	.001MFD, 50V, ±20%, Discap
C18	VCEAAU1HW105R	1MFD, 50V, +150 -10%, Electrolytic
C19	VCKYPU1SD103Z	.01MFD, 30V, +80 -20%, Discap
C20	VCCSBU1HL680J	68PF, 50V, ±5%, Discap
C21	VCKYPU1HB102M	.001MFD, 50V, ±20%, Discap
C22	VCCSPU1HL6R0C	6PF, 50V, ±0.25PF, Discap
C23	VCCCPU1HJ2R0C	2PF, 50V, ±0.25PF, Discap
C24	VCCCPU1HH8R0D	8PF, 50V, ±0.5PF, Discap
C25	VCCCPU1HH270J	27PF, 50V, ±5%, Discap
C26	VCCCPU1HH150J	15PF, 50V, ±5%, Discap
C27	VCKZPU1HB222M	.0022MFD, 50V, ±20%, Discap
C28	VCCSBU1HL331J	330PF, 50V, ±5%, Discap
C29	VCCWPU1HK6R0D	6PF, 50V, ±0.5PF, Discap

C30	VCKYPU1SD103Z	.01MFD, 30V, +80 -20%, Discap
C31	VCKYPU1SD103Z	.01MFD, 30V, +80 -20%, Discap
C32	VCCSPU1HL7R0D	7PF, 50V, ±0.5PF, Discap
C33	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar
C34	VCKYPU1SD103Z	.01MFD, 30V, +80 -20%, Discap
C35	VCKYPU1SD103Z	.01MFD, 30V, +80 -20%, Discap
C36	VCCSBU1HL101J	100PF, 50V, ±5%, Discap
C37	VCQSMT1HS182J	1800PF, 50V, ±5%, Styrol
C38	VCEAAU1CW108Q	1000MFD, 16V, +100 -10%, Electrolytic
C39	VCCSBU1HL151J	150PF, 50V, ±5%, Discap
C40	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar
C41	VCQYKU1HM222M	.0022MFD, 50V, ±20%, Mylar
C42	VCCSPU1HL270J	27PF, 50V, ±5%, Discap
C43	VCCSBU1HL121J	120PF, 50V, ±5%, Discap
C44	VCQSMT1HS182J	1800PF, 50V, ±5%, Styrol
C45	VCCSPU1HL330J	33PF, 50V, ±5%, Discap
C46	VCQYKU1HM223M	.022MFD, 50V, ±20%, Mylar
C47	VCQYKU1HM223M	.022MFD, 50V, ±20%, Mylar
C48	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar
C49	VCQYKU1HM152M	.0015MFD, 50V, ±20%, Mylar
C50	VCQYKU1HM223M	.022MFD, 50V, ±20%, Mylar
C51	VCCSBU1HL331J	330PF, 50V, ±5%, Discap
C52	VCQYKU1HM332M	.0033MFD, 50V, ±20%, Mylar
C53	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar
C54	VCCSPU1HH151J	150PF, 50V, ±5%, Discap
C55	VCCSPU1HH180J	18PF, 50V, ±5%, Discap
C56	VCCTPU1HH181J	180PF, 50V, ±5%, Discap
C57	VCCTPU1HH101J	100PF, 50V, ±5%, Discap
C58	VCQSMT1HS122J	1200PF, 50V, ±5%, Styrol
C59	VCKYPU1HB223M	.022MFD, 50V, ±20%, Discap
C61	VCAAKU0XA104M	.1MFD, 6.3V, ±20%, Aluminum Electrolytic
C62	VCCSPU1HL100D	10PF, 50V, ±0.5PF, Discap
C63	VCEAAU1CW476Q	47MFD, 16V, +100 -10%, Electrolytic
C64	VCKZPU1HF103Z	.01MFD, 50V, +80 -20%, Discap
C101	VCCSBU1HL331J	330PF, 50V, ±5%, Discap
C102	VCCSBU1HL471J	470PF, 50V, ±5%, Discap
C103	VCQYKU1HM223M	.022MFD, 50V, ±20%, Mylar
C104	VCQYKU1HM223M	.022MFD, 50V, ±20%, Mylar
C105	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar
C106	VCEAAU1CW106Q	10MFD, 16V, +100 -10%, Electrolytic
C107	VCKYPU1HB103M	.01MFD, 50V, ±20%, Discap
C108	VCCSBU1HL470J	47MFD, 50V, ±5%, Discap
C109	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar
C110	VCCSPU1HL220J	22PF, 50V, ±5%, Discap
C111	VCQYKU1HM223M	.022MFD, 50V, ±20%, Mylar
C112	VCEAAU1AW107Q	100MFD, 10V, +100 -10%, Electrolytic
C113	VCQYKU1HM223M	.022MFD, 50V, ±20%, Mylar
C114	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar
C115	VCQYKU1HM153M	.015MFD, 50V, ±20%, Mylar
C116	VCAAKU0XA224M	.22MFD, 6.3V, ±20%, Aluminum Electrolytic
C117	VCAAAU1CB104M	.1MFD, 16V, ±20%, Aluminum Electrolytic



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REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
C118	VCCSBU1HL101J	100PF, 50V, $\pm 5\%$ , Discap	C215	VCQYKU1HM102M	.001MFD, 50V, $\pm 20\%$ , Mylar
C119	VCQYKU1HM103M	.01MFD, 50V, $\pm 20\%$ , Mylar	C216	VCQYKU1HM102M	.001MFD, 50V, $\pm 20\%$ , Mylar
C120	VCKZPU1EF104Z	.1MFD, 25V, $+80 - 20\%$ , Discap	C217	VCQYKU1HM683M	.068MFD, 50V, $\pm 20\%$ , Mylar
C121	VCQYKU1HM472M	.0047MFD, 50V, $\pm 20\%$ , Mylar	C218	VCQYKU1HM683M	.068MFD, 50V, $\pm 20\%$ , Mylar
C122	VCQYKU1HM104M	.1MFD, 50V, $\pm 20\%$ , Mylar	C219	VCEAAU1AW108Q	1000MFD, 10V, $+100 - 10\%$ , Electrolytic
C123	VCCSBU1HL221J	220PF, 50V, $\pm 5\%$ , Discap	C220	VCEAAU1AW108Q	1000MFD, 10V, $+100 - 10\%$ , Electrolytic
C124	VCQYKU1HM103M	.01MFD, 50V, $\pm 20\%$ , Mylar	C221	VCEAAU1CW228Q	2200MFD, 16V, $+100 - 10\%$ , Electrolytic
C125	VCEAAU1HW105R	1MFD, 50V, $+150 - 10\%$ , Electrolytic	C225	VCKZPU1HF333P	.033MFD, 50V, $+100 - 0\%$ , Discap
C126	VCEAAU1CW106Q	10MFD, 16V, $+100 - 10\%$ , Electrolytic	C226	VCEAAU1CW108Q	1000MFD, 16V, $+100 - 10\%$ , Electrolytic
C127	VCEAAU1EW475R	4.7MFD, 25V, $+150 - 10\%$ , Electrolytic	C228	VCKZPU1HF333P	.033MFD, 50V, $+100 - 0\%$ , Discap
C128	VCQSMT1HS103J	10000PF, 50V, $\pm 5\%$ , Styrol	C229	VCQYKU1HM473M	.047MFD, 50V, $\pm 20\%$ , Mylar
C129	VCEAAU1CW107Q	100MFD, 16V, $+100 - 10\%$ , Electrolytic	C230	VCQYKU1HM473M	.047MFD, 50V, $\pm 20\%$ , Mylar
C130	VCQSMT1HS222J	2200PF, 50V, $\pm 5\%$ , Styrol	C231	VCEAAU1HW105R	1MFD, 50V, $+150 - 10\%$ , Electrolytic
C131	VCEAAU1HW105R	1MFD, 50V, $+150 - 10\%$ , Electrolytic	C232	VCEAAU1HW105R	1MFD, 50V, $+150 - 10\%$ , Electrolytic
C132	VCEAAU1CW108Q	1000MFD, 16V, $+100 - 10\%$ , Electrolytic	C233	VCEAAU1HW105R	1MFD, 50V, $+150 - 10\%$ , Electrolytic
C133	VCEAAU1CW106Q	10MFD, 16V, $+100 - 10\%$ , Electrolytic	C234	VCEAAU1HW105R	1MFD, 50V, $+150 - 10\%$ , Electrolytic
C134	VCQYKU1HM152M	.0015MFD, 50V, $\pm 20\%$ , Mylar	C235	VCKZPU1HF333P	.033MFD, 50V, $+100 - 0\%$ , Discap
C135	VCQYKU1HM102M	.001MFD, 50V, $\pm 20\%$ , Mylar	C236	VCKZPU1EF104Z	.1MFD, 25V, $+80 - 20\%$ , Discap
C136	VCQYKU1HM102M	.001MFD, 50V, $\pm 20\%$ , Mylar			
C137	VCQYKU1HM472M	.0047MFD, 50V, $\pm 20\%$ , Mylar			
C138	VCEAAU1CW106Q	10MFD, 16V, $+100 - 10\%$ , Electrolytic			
C139	VCQYKU1HM102M	.001MFD, 50V, $\pm 20\%$ , Mylar			
C140	VCQYKU1HM102M	.001MFD, 50V, $\pm 20\%$ , Mylar			
C141	VCQYKU1HM472M	.0047MFD, 50V, $\pm 20\%$ , Mylar			
C142	VCQYKU1HM152M	.0015MFD, 50V, $\pm 20\%$ , Mylar			
C143	VCKZPU1EF104Z	.1MFD, 25V, $+80 - 20\%$ , Discap			
C144	VCQYKU1HM223M	.022MFD, 50V, $\pm 20\%$ , Mylar			
C145	VCKZPU1HF223Z	.022MFD, 50V, $+80 - 20\%$ , Discap			
C146	VCQYKU1HM223M	.022MFD, 50V, $\pm 20\%$ , Mylar			
C147	VCQYKU1HM103M	.01MFD, 50V, $\pm 20\%$ , Mylar			
C201	VCQYKU1HM152M	.0015MFD, 50V, $\pm 20\%$ , Mylar			
C202	VCQYKU1HM683M	.068MFD, 50V, $\pm 20\%$ , Mylar			
C203	VCQYKU1HM683M	.068MFD, 50V, $\pm 20\%$ , Mylar			
C204	VCQYKU1HM152M	.0015MFD, 50V, $\pm 20\%$ , Mylar			
C205	VCEAAU0XW107Q	100MFD, 6.3V, $+100 - 10\%$ , Electrolytic			
C206	VCEAAU1HW105R	1MFD, 50V, $+150 - 10\%$ , Electrolytic			
C207	VCQYKU1HM103M	.01MFD, 50V, $\pm 20\%$ , Mylar			
C208	VCEAAU0XW107Q	100MFD, 6.3V, $+100 - 10\%$ , Electrolytic			
C209	VCEAAU1HW105R	1MFD, 50V, $+150 - 10\%$ , Electrolytic			
C210	VCQYKU1HM103M	.01MFD, 50V, $\pm 20\%$ , Mylar			
C211	VCEAAU1AW336Q	33MFD, 10V, $+100 - 10\%$ , Electrolytic			
C212	VCEAAU1AW336Q	33MFD, 10V, $+100 - 10\%$ , Electrolytic			
C213	VCEAAU1CW106Q	10MFD, 16V, $+100 - 10\%$ , Electrolytic			
C214	VCEAAU1CW106Q	10MFD, 16V, $+100 - 10\%$ , Electrolytic			

## RESISTORS

(All resistors without specification are  $\frac{1}{4}W$ ,  $\pm 10\%$ , Carbon type.)

R1	VRD-SU2EY102K	1K ohm
R2	VRD-SU2EY103K	10K ohm
R3	VRD-SU2EY473K	47K ohm
R4	VRD-SU2EY222K	2.2K ohm
R5	VRD-SU2EY224K	220K ohm
R6	VRD-SU2EY152K	1.5K ohm
R7	VRD-ST2EY122K	1.2K ohm
R8	VRD-SU2EY471K	470 ohm
R9	VRD-SU2EY562K	5.6K ohm
R10	VRD-SU2EY104K	100K ohm
R11	VRD-SU2EY683K	68K ohm
R12	VRD-SU2EY224K	220K ohm
R13	VRD-SU2EY332K	3.3K ohm
R14	VRD-SU2EY152K	1.5K ohm
R15	VRD-SU2EY332K	3.3K ohm
R16	VRD-SU2EY183K	18K ohm
R17	VRD-ST2EY100K	10 ohm
R18	VRD-SU2EY332K	3.3K ohm
R19	VRD-SU2EY101K	100 ohm
R20	VRD-SU2EY183K	18K ohm
R21	VRD-SU2EY153K	15K ohm
R22	VRD-SU2EY471K	470 ohm
R23	VRD-ST2EY470K	47 ohm
R24	VRD-SU2EY223K	22K ohm
R25	VRD-SU2EY562K	5.6K ohm
R26	VRD-SU2EY561K	560 ohm
R27	VRD-SU2EY103K	10K ohm

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
R28	VRD-ST2EY154K	150K ohm	R218	VRD-SU2EY470K	47 ohm
R29	VRD-ST2EY122K	1.2K ohm	R219	VRD-SU2EY121K	120 ohm
R30	VRD-ST2EY122K	1.2K ohm	R220	VRD-ST2HA4R7K	4.7 ohm, $\frac{1}{2}W$ , $\pm 10\%$ , Carbon
R102	VRD-SU2EY561K	560 ohm	R221	VRD-SU2EY4R7K	4.7 ohm
R103	VRD-SU2EY224K	220K ohm	R222	VRD-SU2EY4R7K	4.7 ohm
R104	VRD-SU2EY470K	47 ohm	R223	VRD-SU2EY4R7K	4.7 ohm
R105	VRD-SU2EY221K	220 ohm	R224	VRD-SU2EY4R7K	4.7 ohm
R107	VRD-SU2EY222K	2.2K ohm	R225	VRD-ST2EY222K	2.2K ohm
R108	VRD-SU2EY122K	1.2K ohm	R226	VRD-ST2EY222K	2.2K ohm
R109	VRD-SU2EY473K	47K ohm	R227	VRD-ST2EY122K	1.2K ohm
R110	VRD-SU2EY472K	4.7K ohm	R228	VRD-ST2EY122K	1.2K ohm
R111	VRD-SU2EY103K	10K ohm			
R112	VRD-SU2EY103K	10K ohm			
R113	VRD-SU2EY331K	330 ohm			
R114	VRD-ST2EY102K	1K ohm			
R115	VRS-PT3AB121K	120 ohm, 1W, $\pm 10\%$ , Oxide Film			
R116	VRD-SU2EY182K	1.8K ohm			
R117	VRD-ST2EY151K	150 ohm			
R118	VRD-SU2EY224K	220K ohm			
R119	VRD-ST2EY332K	3.3K ohm			
R120	VRD-SU2EY470K	47 ohm			
R121	VRD-ST2EY183K	18K ohm			
R122	VRD-ST2EY183K	18K ohm			
R123	VRD-SU2EY822K	8.2K ohm			
R124	VRD-SU2EY121K	120 ohm			
R125	VRD-SU2EY105K	1 Meg ohm			
R126	VRD-SU2EY332K	3.3K ohm			
R127	VRD-SU2EY821K	820 ohm			
R128	VRD-SU2EY473K	47K ohm			
R129	VRD-SU2EY182K	1.8K ohm			
R130	VRD-SU2EY562K	5.6K ohm			
R131	VRD-SU2EY821K	820 ohm			
R132	VRD-SU2EY821K	820 ohm			
R133	VRD-ST2EY101K	100 ohm			
R135	VRD-ST2HA271K	270 ohm, $\frac{1}{2}W$ , $\pm 10\%$ , Carbon			
R136	VRD-SU2EY101K	100 ohm			
R137	VRD-SU2EY221K	220 ohm			
R138	RVR-M0008AFZZ	1K ohm, Pot., Separation Adjusting			
R139	VRD-SU2EY273K	27K ohm			
R140	VRD-SU2EY153K	15K ohm			
R141	VRD-SU2EY222K	2.2K ohm			
R142	VRD-SU2EY222K	2.2K ohm			
R143	VRD-SU2EY153K	15K ohm			
R201A,		50K (B) ohm, Volume			
R201B,		50K (B) ohm, Volume			
R201C,	RVR-B0045AFZZ	30K (B) ohm, Tone			
R201D,		30K (B) ohm, Tone			
SW4		with Power Switch			
R205	RVR-B0044AFZZ	50K (B) ohm, Balance Control			
R206	VRD-ST2EY393K	39K ohm			
R207	VRD-ST2EY392K	3.9K ohm			
R208	VRD-ST2EY392K	3.9K ohm			
R209	VRD-ST2EY393K	39K ohm			
R210	VRD-SU2EY123K	12K ohm			
R221	VRD-SU2EY223K	22K ohm			
R212	VRD-SU2EY393K	39K ohm			
R213	VRD-SU2EY123K	12K ohm			
R214	VRD-SU2EY223K	22K ohm			
R215	VRD-SU2EY393K	39K ohm			
R216	VRD-SU2EY470K	47 ohm			
R217	VRD-SU2EY121K	120 ohm			

## MISCELLANEOUS

NL-1	RLMPM0010AFZZ	Neon Lamp
	LHLDP3017AF00	Holder, Dial Lamp, Rubber
PL201,	RLMPM0029AF06	Lamp, Dial Illumination
PL202		
	LHLDP3014AFFW	Bracket, Lamp Holder, Right
F1	QFS-A232BAFNH	Fuse, 2.3A
	LANGZ0003AFFW	Bracket, L-Type (Car Mounting)
	LX-BZ0021AGFD	Bolt (5 $\phi$ x 8mm)
	LX-BZ0022AGFD	Bolt (5 $\phi$ x 14mm)
	XNESD50-45000	Nut (5 $\phi$ )
	XWHS050-05000	Washer (5 $\phi$ )
	XWHS092-05140	Washer (9.2 $\phi$ )
	XWSSJ50-13000	Spring Washer (5 $\phi$ )
	QPLGN0402AFZZ	Plug, Speaker
	QCNW-0010AF07	Cord, Speaker
	HPNLC3024AFSA	Panel
	HDECQ0041AFSA	Decoration Plate, Panel (Black)
SO302	QSOCZ0020AFZZ	Socket, Polarity
SO301	QSOC0704AFZZ	Socket, DIN
	QSOCN0402AFZZ	Socket, Speaker
	QFSHJ1014AFZZ	Fuse Holder with Cord
	RC-HZ0035AFZZ	Shield Case with Feed Through Capacitor
	GCABA0365AFFW	Cabinet, Main
	LHLDW3016AFFW	Holder, Speaker Cord
	QPLGD0401AFZZ	Plug, DIN Socket
	QPLGE0403AGZZ	Plug, Polarity
SO1	QSOCZ9030AFZZ	Socket, Antenna
	LHLDW3015AFFW	Holder, Antenna Cord
	LANGF0042AFFW	Bracket, Capacitor (C18)
PL101	PSHEZ0018AFZZ	Insulator, Integrated Circuit
	RLMPM0028AFZZ	Lamp, Stereo Indication
	LHLDP3016AFB	Bracket, Stereo Lamp
	LBOSC0016AFFW	Boss, P.W. Board Retaining
	QPWBF0228AFZZ	Printed Wiring Board, Light Emission Diode
SW3	QSW-S0100AFZZ	Switch, FM Stereo-FM Monaural
	HDAP-0140AF00	Holder, Light Emission Diode, Black
	GCABD0365AFFW	Cabinet, Front
	LANGA0005AFFW	Bracket, Tuning and Volume Shafts
	LHLDP3015AFFW	Bracket, Lamp Holder Left
	QPWBF0227AFZZ	Printed Wiring Board, Switch
	LBOSB0084AFFW	Boss, Tuner Retaining



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REF. NO.	PART NO.	DESCRIPTION	
	PSPAA0009AFFW	Spacer, Balance Volume	
	PRDAR0065AFFW	Heat Sink	
	QPWBF0226AFZZ	Printed Wiring Board, Main	
	PSLDM3087AFFW	Shield Plate, Long	
	PSLDM3088AFFW	Shield Plate, Short	
	HDALP0240AFSA	Dial Scale	
	HDECQ0038AFSA	Nose Piece	
	HSSND0179AF02	Dial Pointer	
	PCOVM1010AF00	Felt, FM STEREO/MONO Switch	
	LX-NZ0058AFFD	Nut (9 $\phi$ ), Tuning and Volume Shafts	
	JKNBK0108AFSA	Knob, Outer	
	JKBNB0164AFSA	Knob, Inner	
	GCABB0365AFFW	Cabinet, Upper	
	GCABC0365AFFW	Cabinet, Bottom	
	LANGT0071AFFW	Suspension Plate (Car Mounting)	
	PSPAB0044AFB	Spacer (Bronze), Tuning and Volume Shafts	
	PSPAA0008AFFW	Spacer (metal), Tuning and Volume Shafts	
	PSPAA0001AFFW	Spacer (Aluminium), Tuning and Volume Shafts	
	A3XCP-27-2	Speaker Box Assembly	
	GCAB-0356AFSA	Cabinet, Speaker	
	HINDM0465AFSA	Emblem "SHARP"	
	LANGS0022AFFW	Bracket, Speaker	
	LANGT0075AFFW	Bracket, Speaker Box	
	VSP0012PB064A	Speaker	